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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/512,119

10/21/2004

Matthias Wendt

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02/13/2006

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

ROSENAU, DEREK JOHN

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 02/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/512,119	Applicant(s) WENDT ET AL.	
	Examiner Derek J. Rosenau	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 5-22 is/are pending in the application.
- 4a) Of the above claim(s) 1 and 5-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/21/04 9/6/05 1/13/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 1 and 5-9 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1/13/06.
2. Applicant's election of the invention of Figure 3 in the reply filed on 1/13/06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Applicant indicated that claims 1 and 5-9 belong to the elected species. However, there is no basis for these claims in Figure 3. The basis for these claims can be found in Figures 1 and 2. Additionally, applicant failed to address claims 21 and 22. These claims belong to the elected species and will be examined.

Information Disclosure Statement

3. The information disclosure statement filed 10/21/2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.
4. The information disclosure statement filed 10/21/2004 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most

knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Drawings

5. The drawings were received on 1/13/2006. These drawings are accepted.

Specification

6. The abstract of the disclosure is objected to because it must commence on a separate sheet of paper, and cannot contain any other information. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai (US 4965532) in view of Buice et al. (US 5595330) in further view of Morales Serrano et al. (US 6396192).

9. With respect to claim 10, Sakurai discloses a starting-process controller for starting a piezomotor (Fig 3), having a voltage controlled oscillator (VCO) (item 17), and a power output stage (item 13), wherein the oscillator generates the control signals required for the output stage, the motor current that flows when the piezomotor is driven is measured and compared with the phase of the drive voltage in a phase comparator

(items 14 and 15), the output signal from the phase comparator is a measure for the phase difference at the time between current and voltage, and a phase-locked loop filter (item 16) smoothes the phase-difference signal, the smoothed signal controls the oscillator.

Sakurai does not disclose expressly that the resonance converter converts the stepped output voltage from the power output stage into a sinusoidal voltage at its output, that the piezomotor is driven by the sinusoidal voltage from the resonance converter, or that an adjustable time-delay element is provided, by which the phase angle between the voltage applied to the motor and the motor current is changed in start-up operation from an initially large starting angle towards a smaller angle at the operating point, so that start-up will be completed safely and reliably irrespective of the loading condition.

Buice et al. teaches a power supply that for an ultrasonic device that uses a resonance converter to convert a square wave into a sine wave, the output of which drives the ultrasonic transducer (Fig 4A, item 123).

Morales Serrano et al. teaches a circuit for driving a piezoelectric device that includes an adjustable time-delay element (Fig 3, item 8), by which the phase angle between the voltage applied to the motor (item 13) and the motor current (item 4) is changed in start-up operation from an initially large starting angle towards a smaller angle at the operating point, so that start-up will be completed safely and reliably irrespective of the loading condition (column 4, lines 14-28).

At the time of invention it would have been obvious to a person of ordinary skill in the art to combine the resonance converter of Buice et al. and the time-delay element of Morales Serrano et al. with the ultrasonic transducer driving circuit of Sakurai for the benefit of being able to more readily use digital control with the device, and to obtain optimum driving efficiency for the piezoelectric device.

10. Claims 11-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai in view of Buice et al. in further view of Morales Serrano et al. in further view of Katsuragawa (US 5661359).

11. With respect to claim 11, the combination of Sakurai, Buice et al., and Morales Serrano et al. discloses the starting-process controller as claimed in claim 10.

Sakurai, Buice et al. and Morales Serrano et al. do not disclose expressly that the reduction in phase-angle during the start-up process is in the form of a ramp.

Katsuragawa teaches a vibration motor device that controls the driving frequency such that the phase difference between two measured values from the piezoelectric device corresponds to a range of phase differences associated with the resonance frequency and a frequency slightly above the resonant frequency (Fig 4, steps 60-65). The decrease in phase angle is performed incrementally, by incrementally stepping the frequency (and therefore the phase angle), forming a ramp.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the ramped phase angle reduction of Katsuragawa with the ultrasonic transducer driving circuit of Sakurai as modified by Buice et al. and Morales

Serrano et al. for the benefit of simplifying the programming necessary in controlling the phase angle.

12. With respect to claim 12, the combination of Sakurai, Buice et al., and Morales Serrano et al. discloses the starting-process controller as claimed in claim 10.

Sakurai, Buice et al. and Morales Serrano et al. do not disclose expressly that the reduction in phase angle during the start up process is effected by means of a digital counter.

Katsuragawa teaches a vibration motor device that controls the driving frequency using a counter (Fig 1, item 18) to update phase difference information.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the counter of Katsuragawa with the ultrasonic transducer driving circuit of Sakurai as modified by Buice et al. and Morales Serrano et al. for the benefit of providing an input that more readily provides updated phase delay information to the computer.

13. With respect to claim 13, the combination of Sakurai, Buice et al., and Morales Serrano et al. discloses the starting-process controller as claimed in claim 10.

Sakurai, Buice et al. and Morales Serrano et al. do not disclose expressly that the starting value of the counter fixes the phase angle.

Katsuragawa teaches a vibration motor device that controls the driving frequency using a counter (Fig 1, item 18) to update phase difference information. Although Katsuragawa does not discuss that the starting value of the counter fixes the phase

angle, the counter must have a starting value, and this value would be associated with a phase delay.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the counter of Katsuragawa with the ultrasonic transducer driving circuit of Sakurai as modified by Buice et al. and Morales Serrano et al. for the benefit of providing an input that more readily provides updated phase delay information to the computer.

14. With respect to claim 14, the combination of Sakurai, Buice et al., Morales Serrano et al., and Katsuragawa discloses the starting-process controller as claimed in claim 12.

Sakurai, Buice et al. and Morales Serrano et al. do not disclose expressly that the phase-angle is fixed by the final count reached by the counter.

Katsuragawa teaches a vibration motor device that controls the driving frequency using a counter to update phase difference information. Although Katsuragawa does not discuss that the phase-angle is fixed by the final count reached by the counter, there must be a final count reached by the counter, and this value would be associated with a phase delay.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the counter of Katsuragawa with the ultrasonic transducer driving circuit of Sakurai as modified by Buice et al. and Morales Serrano et al. for the benefit of providing an input that more readily provides updated phase delay information to the computer.

15. With respect to claim 15, the combination of Sakurai, Buice et al., and Morales Serrano et al. discloses the starting-process controller as claimed in claim 10.

Sakurai, Buice et al. and Morales Serrano et al. do not disclose expressly that the start-up process is determined by means of a counter.

Katsuragawa teaches a vibration motor device that controls the driving frequency using a counter (Fig 1, item 18) to update phase difference information.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the counter of Katsuragawa with the ultrasonic transducer driving circuit of Sakurai as modified by Buice et al. and Morales Serrano et al. for the benefit of providing an input that more readily provides updated phase delay information to the computer.

16. With respect to claim 16, the combination of Sakurai, Buice et al., Morales Serrano et al., and Katsuragawa discloses the starting-process controller as claimed in claim 15.

Sakurai, Buice et al. and Morales Serrano et al. do not disclose expressly that the counter counts single or multiple oscillations of the oscillator frequency

Katsuragawa teaches a vibration motor device that controls the driving frequency using a counter to update phase difference information. This phase difference information is based on comparing the two measured waveforms, and therefore there must be a count of the oscillations of those waveforms.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the counter of Katsuragawa with the ultrasonic transducer driving

circuit of Sakurai as modified by Buice et al. and Morales Serrano et al. for the benefit of providing an input that more readily provides updated phase delay information to the computer.

17. With respect to claim 17, the combination of Sakurai, Buice et al., Morales Serrano et al., and Katsuragawa discloses the starting-process controller as claimed in claim 15.

Sakurai, Buice et al. and Morales Serrano et al. do not disclose expressly that the counter counts oscillations of a reference frequency forming a clock signal.

Katsuragawa teaches a vibration motor device that controls the driving frequency using a counter to update phase difference information. In order to determine this information, a clock signal (Fig 1, item 17) is used.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the counter of Katsuragawa with the ultrasonic transducer driving circuit of Sakurai as modified by Buice et al. and Morales Serrano et al. for the benefit of providing an input that more readily provides updated phase delay information to the computer.

18. With respect to claim 18, the combination of Sakurai, Buice et al., Morales Serrano et al., and Katsuragawa discloses the starting-process controller as claimed in claim 15.

Sakurai, Buice et al. and Morales Serrano et al. do not disclose expressly that the counts made by the counter are used directly for setting the phase delay.

Katsuragawa teaches a vibration motor device that controls the driving frequency using a counter to update phase difference information. The counts made by the computer are input to a computer, and this information is used in changing the phase delay (Fig 4, steps 60-65).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the counter of Katsuragawa with the ultrasonic transducer driving circuit of Sakurai as modified by Buice et al. and Morales Serrano et al. for the benefit of providing an input that more readily provides updated phase delay information to the computer.

19. With respect to claim 19, the combination of Sakurai, Buice et al., and Morales Serrano et al. discloses the starting-process controller as claimed in claim 10.

Sakurai, Buice et al. and Morales Serrano et al. do not disclose expressly that the counts are converted into the value for setting the phase delay.

Katsuragawa teaches a vibration motor device that controls the driving frequency using a counter (Fig 1, item 18) to update phase difference information. The counts made by the computer are input to a computer, and this information is used in changing the phase delay (Fig 4, steps 60-65).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the counter of Katsuragawa with the ultrasonic transducer driving circuit of Sakurai as modified by Buice et al. and Morales Serrano et al. for the benefit of providing an input that more readily provides updated phase delay information to the computer.

20. With respect to claim 20, the combination of Sakurai, Buice et al., and Morales Serrano et al. discloses the starting-process controller as claimed in claim 10.

Sakurai, Buice et al. and Morales Serrano et al. do not disclose expressly that the counts are converted into values for setting the phase delay by means of a table in a memory device (RAM or ROM).

Katsuragawa teaches a vibration motor device that controls the driving frequency using a counter (Fig 1, item 18) to update phase difference information. The values input to the computer from the counter are compared with predetermined values stored in the computer (Fig 4, steps 60-65) in determining how to change the frequency in order to decrease the phase angle.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the counter of Katsuragawa with the ultrasonic transducer driving circuit of Sakurai as modified by Buice et al. and Morales Serrano et al. for the benefit of providing an input that more readily provides updated phase delay information to the computer.

21. With respect to claim 21, the combination of Sakurai, Buice et al., and Morales Serrano et al. discloses the starting-process controller as claimed in claim 10.

Sakurai, Buice et al. and Morales Serrano et al. do not disclose expressly that the starting process is monitored by a programmable device such as a microprocessor or a DSP.

Katsuragawa teaches a vibration wave motor device that controls adjusts the phase angle through the use of a program run on a computer (Fig 1, item 2).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the computer of Katsuragawa with the ultrasonic transducer driving circuit of Sakurai as modified by Buice et al. and Morales Serrano et al. for the benefit of providing a means of digitally controlling the operation of the ultrasonic transducer.

22. With respect to claim 22, the combination of Sakurai, Buice et al., Morales Serrano et al., and Katsuragawa discloses the starting-process controller as claimed in claim 21.

Sakurai, Buice et al. and Morales Serrano et al. do not disclose expressly that the microprocessor monitors the phase delay digitally.

Katsuragawa teaches a vibration wave motor device that controls adjusts the phase angle through the use of a program run on a computer (Fig 1, item 2). The primary input in determining how to adjust the phase delay is the updated phase delay information from the counter. The counter digitally inputs the updated phase delay information to the computer.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the computer of Katsuragawa with the ultrasonic transducer driving circuit of Sakurai as modified by Buice et al. and Morales Serrano et al. for the benefit of providing a means of digitally controlling the operation of the ultrasonic transducer.

Conclusion

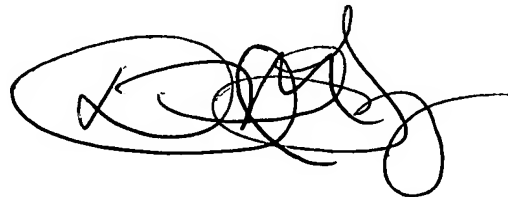
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek J. Rosenau whose telephone number is 571-272-8932. The examiner can normally be reached on Monday thru Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Derek J Rosenau
Examiner
Art Unit 2834

DJR
2/7/06

A handwritten signature in black ink, appearing to read 'David Gray', enclosed within a large, loopy oval shape.

David Gray
Primary Examiner